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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/694,502	10/24/2000	Kazumi Kimura	35.C14889	1071

5514 7590 12/22/2004

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EXAMINER	
PHAM, HAI CHI	
ART UNIT	**PAPER NUMBER**
2861	

DATE MAILED: 12/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/694,502	KIMURA, KAZUMI	
	Examiner	Art Unit	
	Hai C Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,15 and 16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13,15 and 16* is/are rejected.

7)☒ Claim(s) *12* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/07/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of group II in the reply filed on 10/04/04 is acknowledged. The traversal is on the grounds that while "Claim 1 is usable in an image forming apparatus that forms monochromatic images, there is nothing in Claim 1 that precludes its use in a color image forming apparatus". This is found persuasive. Therefore, the restriction requirement is no longer applied.

Drawings

2. The drawings were received on 10/04/04. These drawings are approved.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

4. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are related to the claimed

"second optical element for converting a light beam into a linear image elongated in a main scanning direction". It is not known where the second optical element is located relative to the other components of the scanning optical apparatus, e.g., with respect to the deflecting element, the scanning optical element and/or the optical element for synchronous detection.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-2, 8-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiku et al. (U.S. 4,937,664) in view of Kato (U.S. 5,963,356).

Chiku et al. discloses a color image forming apparatus for scanning a beam from at least one scanning optical apparatus, each of which comprises a light source (22), a deflecting element (21), a scanning optical element (20), a synchronous detection sensor (29) for timing of the image writing, and a registration or scanning position detecting means (mark detectors 11 and 12) for detecting a positional deviation in the main scanning direction of a marking (MC1, MC2, Fig. 4) of a predetermined shape formed on each of said image beam members by each scanning optical apparatus

being provided at a position corresponding to an image height separate from the optical axis of said scanning optical element (col. 6, line 44 to col. 7, line 23).

Chiku et al. fails to teach the anamorphic optical element for directing the deflected beam from the deflecting element to the synchronous sensor.

Kato discloses a scanning optical apparatus including a BD lens (42) for guiding the deflected light beam from the polygon mirror (5) to the BD sensor (9), wherein the optical axis of the BD lens is coincident with a principal ray of the deflected beam from the polygon mirror, the BD lens being anamorphic.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide an anamorphic lens in the device of Chiku et al. for guiding the deflected light beam to the beam detection sensor as taught by Kato. The motivation for doing so would have been allow the deflected beam to be focused on the light-receiving surface of the beam detection sensor.

With regard to claims 8, 10-11, 13, Chiku et al. further teaches:

- said scanning optical element effects correction control of correcting a scanning magnification in conformity with the output of said scanning position detecting means (11 and 12) (col. 9, lines 1-13 and col. 11, lines 41-53),
- said registration means is disposed so as to be capable of detecting a plurality of image heights symmetrical with respect to the optical axis of said scanning optical element (Fig. 4),

- a correcting means for reducing registration deviation relative to the scanning optical apparatus providing the reference, in conformity with the output of said registration detecting means (Fig. 4) (col. 6, line 67 to col. 7, line 6),
- the magnification error misregistration being corrected in accordance with the difference amount (D4-D3) so as to cancel said different value (D4-D3) (col. 11, lines 41-53).

7. Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiku et al. in view of Kato ('356), as applied to claim 1 above, and further in view of Kato (U.S. 6,822,666).

Chiku et al., as modified by Kato ('356), discloses all the basic limitations of the claimed invention except for the scanning optical element, the synchronous detection lens and the second optical lens being of a plastic material integrally molded by plastic injection molding and the scanning optical element comprising a refracting optical element and a diffracting optical element.

Kato ('666) discloses a color image forming apparatus including at least one scanning optical apparatus being provided with a correction means for correcting the magnification error in the main scanning direction, each of the scanning optical apparatus including a scanning optical element having a refracting optical element (6) and a diffracting optical element (62) made of resin, a synchronous detection optical element (7) provided as an anamorphic lens for focusing the deflected light beam to the beam detection sensor and the second optical lens (4) as a cylindrical lens for

producing linear images on the deflection plane of the polygon mirror in the main scanning direction, wherein the scanning optical element, the synchronous detection optical element and the second optical element being of a plastic material integrally molded by plastic injection molding.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the optical elements in the device of Chiku et al. with plastic lenses as taught by Kato ('66). The motivation for doing so would have been to provide inexpensive plastic lenses for effectively suppressing the jittering phenomenon of the scanning optical apparatus due to the variation of the multiple light beams and the lateral magnification due to environmental changes.

8. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiku et al. in view of Kato ('356), as applied to claims 1 and 9 above, and further in view of Maekawa (U.S. 5,889,594).

Chiku et al., as modified by Kato ('356), discloses all the basic limitations of the claimed invention except for the printer controller for converting code image data.

However, it is old and well known in the art that the device for converting the code data into image signal used to modulate the laser beam is part of the input interface of any printer, as evidenced by Maekawa, which discloses a printer controller unit (103) (Fig. 3) including an interface unit (306) for receiving an input data signal from an external device and an image data generating unit (303) for converting the received input code data into image data for an actual printing (col. 3, line 58 to col. 4, line 17).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the printer controller in the modified device of Chiku et al. since Maekawa teaches this to be known in the art to provide a printer controller including the input interface unit and the image data generating unit such that the external code data can be converted into a usable data for modulating the laser beam of the laser printer.

Allowable Subject Matter

9. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the primary reason for the indication of the allowability of claim 12 is the inclusion therein, in combination as currently claimed, of the limitation "wherein the registration detecting means effects correction control of correcting the timing of image writing beginning by an amount corresponding to the registration deviation of the first and second image heights", which is not found taught by the prior art of record considered alone or in combination .

Response to Arguments

11. Applicant's arguments with respect to claims 1-11, 13 and 15-16 have been considered but are moot in view of the new grounds of rejection presented in this Office action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Chi Pham

HAI PHAM
PRIMARY EXAMINER

December 20, 2004